

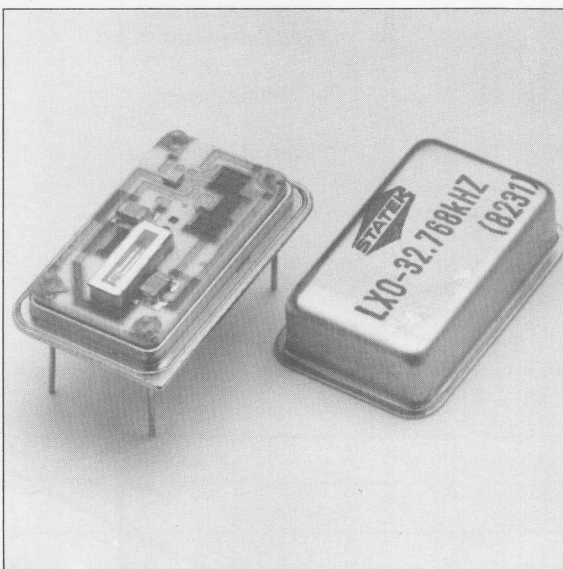


Low Power Crystal Oscillators

LXO Series
10 kHz to 2 MHz*



ACTUAL SIZE



Features

- **Laser trimmed for high accuracy**
- **Low power consumption**
- **Low aging**
- **CMOS compatible**
- **Low-profile, hermetically-sealed package**
- **Full military testing available**

*Frequencies down to 0.0006 Hz available.
Contact factory.

Description

The LXO Series has the highest accuracy and stability of all Statek oscillators. The design consists of a CMOS-compatible hybrid circuit packaged in a hermetically-sealed metal DIP.

Permanent, precision tuning of the oscillator is accomplished by laser trimming the crystal after it has been hermetically sealed in a ceramic package and connected into the oscillator circuit. This method of fine tuning allows for very tight calibration tolerances and eliminates the need for a tuning capacitor, a major source of long-term frequency drift.

The specifications and characteristics of the LXO Series vary with frequency. The characteristics of the 32.768 kHz model are presented in this data sheet. Contact the factory regarding other frequencies.

Specifications, LXO-32.768 kHz

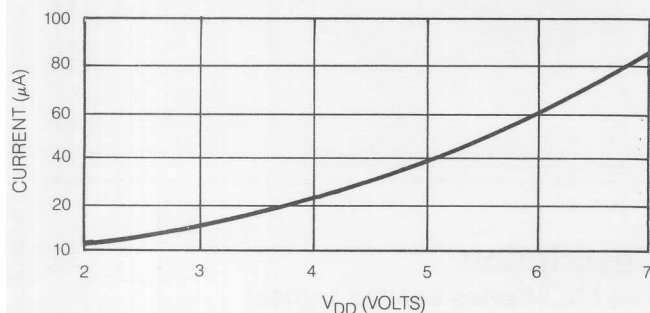
Specifications are typical at 25° unless otherwise noted.
Specifications subject to change without notice.

Calibration Tolerance at 5V*	A: ± 10 ppm B: ± 25 ppm C: ± 100 ppm
Frequency Stability**	
0 to 50°C	-0.0025% typical -0.004% maximum
-20 to +70°C	-0.007% typical -0.01% maximum
Voltage Coefficient	1 ppm/V typical, 3 ppm/V maximum
Current Consumption	See Figure 1
Aging	1 ppm/year typical 3 ppm/year maximum
Shock	
1000g, 1 msec, 1/2 sine	3 ppm maximum
Vibration	
10g rms, 10-2000 Hz	3 ppm maximum
Frequency Change vs. 10% Output Load Change	1 ppm maximum

*Tighter tolerances available.

**Does not include calibration tolerance. Positive variations small compared to negative variations.

Figure 1. Typical Current Consumption



Electrical Characteristics, LXO-32.768 kHz

Output load = 10pf, 10MΩ V_{DD} = 5V

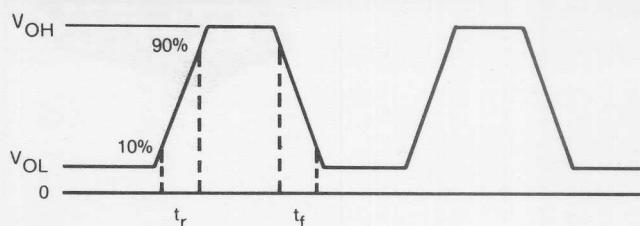
SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT
V _{OH}	Output Voltage: Hi	4.8	4.95		V
V _{OL}	Output Voltage: Lo		0.03	0.2	V
t _r	Rise Time			1.0	µsec
t _f	Fall Time			1.0	µsec
I _{DD}	Supply Current		45	60	µA
	Duty Cycle	40	50	60	%

Absolute Maximum Ratings*

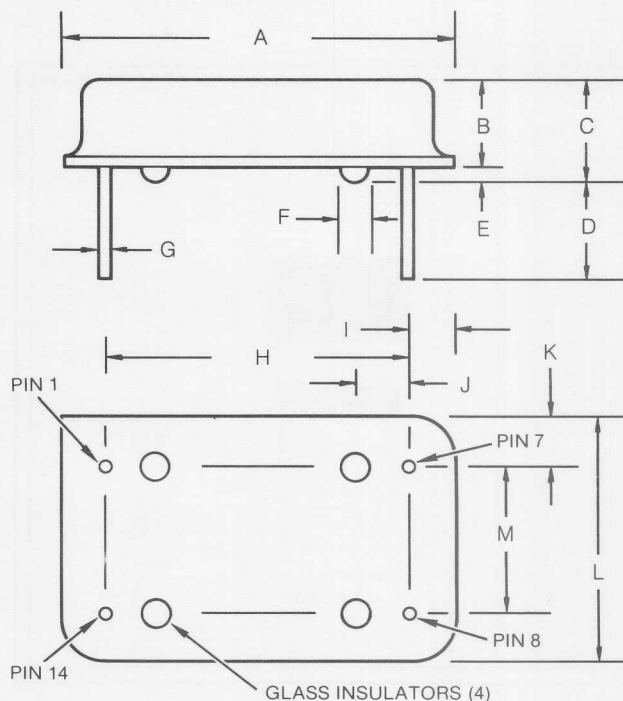
Supply Voltage	-0.3 to +9.0V
Operating Temperature	-20 to +70°C
Storage Temperature	-45 to +85°C

*Military temperature range (-55 to +125°C) available.

Timing Diagram



Package Dimensions (Inches)



	INCHES	MM
A	0.795 \pm 0.005	20.19 \pm 0.13
B	0.200 MAX	5.08 MAX
C	0.215 MAX	5.46 MAX
D	0.15 MIN	3.81 MIN
E	0.008/0.025	0.20/0.64
F	0.060 TYP	1.5 TYP
G	0.018 \pm 0.001	0.46 \pm 0.02
H	0.600 \pm 0.005	15.24 \pm 0.13
I	0.098	2.49
J	0.100 \pm 0.05	2.54 \pm 0.13
K	0.098	2.49
L	0.495 \pm 0.005	12.57 \pm 0.13
M	0.300 \pm 0.005	7.62 \pm 0.13

Pin Connections

- 1 NC
- 7 Ground—(Case)
- 8 Output
- 14 V_{DD}



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